

**THE STATE OF NEW HAMPSHIRE**  
**BEFORE THE**  
**PUBLIC UTILITIES COMMISSION**

**DE 19-197**

**Electric and Natural Gas Utilities**

**Development of a Statewide, Multi-use Online Energy Data Platform**

Rebuttal Testimony of Clifton C. Below

On behalf of  
City of Lebanon, NH &  
Local Government Coalition (“LGC”)

October 23, 2020

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**I. Introduction**

1 **Q. Please identify yourself and your involvement in this proceeding.**

2 **A.** I am Clifton C. Below, testifying on behalf of the City of Lebanon where I serve as  
3 Assistant Mayor. My personal office address is 1 Court Street, Suite 300, Lebanon, NH 03766. I  
4 previously filed direct testimony and have participated in most if not all technical sessions,  
5 contributing to written commentary with the Local Government Coalition earlier in the  
6 proceeding. I've helped coordinate the LGC testimony and discovery responses.

7 **Q. What is the nature of your rebuttal testimony?**

8 **A.** I have responded to 18 discovery/data requests from Eversource and Unitil directed to me  
9 that I am entering as part of my rebuttal testimony as they further explain and support some of  
10 my direct testimony, particularly in areas that contrast with utility positions. These responses to  
11 data requests have been reformatted to better fit testimony format and some minor typos have  
12 been fixed. The page numbers at the start of each request refer to the original Bates stamp page  
13 numbers in the LGC testimony filed on 8/17/20 and found at tab 63 of the docket book and also  
14 refiled the next day on 8/19 at tab 65 with some improved Bates pagination and indexing, but the  
15 same content. I also collaborated with LGC witness Samuel Golding in the response to Request  
16 No. EU to LGC 1-058 concerning FERC jurisdictional issues around whether a transactive  
17 energy platform at the distribution system level that might be supported by the data platform  
18 contemplated in this proceed would be subject to FERC jurisdiction. And I collaborated with  
19 LGC witness Amro Farid on the response to Request No. EU to LGC 1-070 concerning TVR.  
20 Both responses are files with the other witnesses' testimony, but they should be considered to be  
21 joint testimony with myself.

22 **Q. Are there any general rebuttal remarks you would like to make?**

1     **A.**     Yes. I would like to call the attention of Commission and the parties to a virtual program  
2 that was sponsored over the course of this past summer on the “Digital Grid” by the Electric  
3 Power Research Institute and the Bits & Watts program of the Precourt Institute for Energy at  
4 Stanford University that supports the broad vision and potential for a NH data platform in  
5 contrast to the narrow vision of Eversource and Unitil. The vision is that the Digital Grid is the  
6 next frontier of electric grid modernization that “requires *an enabling data platform that*  
7 *standardizes how data from customer technologies and resources interfaces with grid.*” This is  
8 a core element of the shared integrated grid as characterized in Dr. Amro Farid’s direct  
9 testimony. He was among the presenters in one of many panels and his presentation was  
10 attached to his testimony as Attachment C, p. 189.

11 I have attached a few of slides from the presentations. All of them are available at:

12 [https://www.epri.com/research/sectors/technology/events/6182D0F6-9731-4819-83FD-](https://www.epri.com/research/sectors/technology/events/6182D0F6-9731-4819-83FD-3A126EEEF613)  
13 [3A126EEEF613](https://www.epri.com/research/sectors/technology/events/6182D0F6-9731-4819-83FD-3A126EEEF613). I’d like to call attention to one presenter, LF Energy<sup>1</sup> that was part of the Open  
14 Standards Data Platform panel. They are “an open source foundation focused on the power  
15 systems sector, hosted within The Linux Foundation. LF Energy provides a neutral, collaborative  
16 community to build the shared digital investments that will transform the world’s relationship to  
17 energy.”<sup>2</sup> They could be a tremendous resource as we work to develop a statewide multi-use,  
18 online energy data platform.

## II.     **Discussion of whether a Cost/Benefit analysis is required**

19     **Request No. EU to LGC 1-001** Witness & Respondent: Clifton Below

20     **REQUEST:** Page 7, line 6: Please explain how you reconcile the statement that a cost/benefit  
21 analysis does not need to be undertaken with the language in the law that directs to Commission  
22 to “defer the implementation of the statewide, multi-use, online energy data platform... if it

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<sup>1</sup> <https://www.lfenergy.org/>

<sup>2</sup> <https://www.lfenergy.org/why-lfenergy/>

1 determines that the cost of such platform to be recovered from customers is unreasonable and not  
2 in the public interest”? How should public interest be determined in the absence of a cost/benefit  
3 analysis? Please be as specific as possible with your criteria.

4 **RESPONSE:** I reconcile my assertion that neither the Commission nor other parties to this  
5 proceeding are required to undertake a benefit/cost analysis to determine if development and  
6 implementation of the multiuse, statewide data platform is in the public interest with RSA 378:51  
7 by reading the plain language of the statute, as is standard practice in statutory interpretation. The  
8 first section of SB 284, which was enacted as Chapter 286, NH Laws of 2019, presents a number  
9 of findings by the NH General Court that together constitute a strong finding or presumption that  
10 it is in public interest to develop and implement a multi-use online data platform, by the body that  
11 has the highest authority to make such findings or determinations.

12 The NH Constitution provides that “all just power possessed by the state is [] granted to the  
13 general court to enact laws . . . to control and regulate the acts of [monopoly] corporations”  
14 including to provide “for the supervision of government thereof” as well as to limit and regulate  
15 the “size and functions of all [such monopoly] corporations. (Part II, Art. 83, Constitution of  
16 New Hampshire.) Over the years the General Court has enacted laws to create and delegate  
17 much of this authority to the Commission, however the General Court does regularly provide  
18 policy and regulatory direction to the Commission through legislative findings and enactments.

19 In this case the General Court finds, in part,<sup>3</sup> that:

20 ***In order to accomplish the purposes of electric utility restructuring under RSA 374-F,***  
21 ***to implement fully the state energy policy under RSA 378:37, and to make the state's***  
22 ***energy systems more distributed, responsive, dynamic, and consumer-focused, it is***  
23 ***necessary to provide consumers and stakeholders with safe, secure access to information***  
24 ***about their energy usage. Access to granular energy data is a foundational element for***  
25 ***moving New Hampshire's electric and natural gas systems to a more efficient paradigm***

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<sup>3</sup> with emphasis added in this and subsequent quotations.

1           *in which empowering consumers is a critical element.* (Chapter 286:1, NH Laws of  
2           2010)

3           The primary purpose of RSA 374-F to restructure the electric utility industry and guide its  
4           regulation going forward is stated in the first sentence of the purpose clause – to harness “the  
5           power of competitive markets” to reduce costs for consumers of electricity. It expressly  
6           identifies as “**key** elements in a restructured industry” “[i]ncreased customer choice and the  
7           development of **competitive** wholesale and **retail electricity services.**” The work “key” in this  
8           context means “to be essential to, play the most important part in.”<sup>4</sup>

9           The plain meaning of “necessary” in the context of the data platform statutory findings is  
10          “absolutely needed, required.”<sup>5</sup> The plain meaning of “foundational” in this context is “of,  
11          relating to, or forming or serving as a base or foundation.”<sup>6</sup> A foundation is a base or platform  
12          on which other structures, principles, or policies are supported. The plain meaning of “critical” in  
13          this context is “indispensable, vital.”<sup>7</sup>

14          Another way to read or paraphrase the General Court’s findings, at least in part, is that they have  
15          found, as a matter of law, that in order to realize the public policy goals of RSA 374-F and RSA  
16          378:37 [by law deemed to be in the public interest] including to achieve the *essential* goal of  
17          developing an open and competitive market for retail electricity services and customer choice it  
18          is *absolutely needed – required* – to develop a robust data platform for a multiplicity of uses  
19          related to energy data and that the development and implementation this platform provides *a*  
20          *base – a foundation* – for moving the whole natural gas and electric systems forward to a more  
21          efficient paradigm or structure in which it is *vital – indispensable* – to empower consumers

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<sup>4</sup> <https://www.merriam-webster.com/dictionary/key>

<sup>5</sup> <https://www.merriam-webster.com/dictionary/necessary>

<sup>6</sup> <https://www.merriam-webster.com/dictionary/foundational>

<sup>7</sup> <https://www.merriam-webster.com/dictionary/critical>

1 through development of the data platform. Hence, the General Court has established a rather  
2 clear presumption that development of the data platform is in the public interest.

3 The implementing language of the statute reinforces this presumption that development of the  
4 data platform is in the public interest. RSA 378:51 opens by creating an unequivocal mandate in  
5 the first instance:

6 “The commission ***shall require*** electric and natural gas utilities to establish and jointly  
7 operate a statewide, multi-use, online energy data platform. The platform ***shall*** . . .” [and  
8 the statute goes on to specify a number of features (a)-(g) that the platform is required to  
9 have].

10 In the next section RSA 378:51, II requires an adjudicative proceeding to determine a number of  
11 features of the data platform grouped in subsections (a)-(c). There is nothing in this list that  
12 specifies that Commission or any party, including the utilities, are required to undertake a  
13 benefit-cost test, or even consider benefits or costs, much less make a positive determination that  
14 development and implementation of the platform is in the public interest or for the public good.  
15 If the legislature had wanted to require the Commission make an affirmative public interest  
16 determination on any basis, including evaluation of costs and benefits, they could have easily  
17 incorporated such languages into the list of determinations that the Commission is required to  
18 undertake as part of the adjudicated proceeding, but they did not. The legislature has required  
19 that the Commission make an affirmative finding that an action is in the public interest or for the  
20 public goods many times before<sup>8</sup>, so they know how to write such a requirement. But they wrote  
21 no such requirement for an affirmative public interest determination and evaluation of costs and  
22 benefits as part of this adjudicative proceeding.

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<sup>8</sup> Just as one example, RSA 374-G:5, II requires the Commission to make a positive public interest determination in order to authorize utility investments and cost recovery in certain distributed energy resources and includes as criteria for making such a determination evaluation of 9 factors, 3 of which expressly reference costs and benefits and 4 others reference costs, benefits, or benefits and liabilities.

1 Instead, as a separate requirement, apart from the adjudicative proceeding requirements, the  
2 General Court wrote at RSA 378:51, III that the “[c]ommission shall defer the implementation of  
3 the . . . platform pursuant to paragraph I if it determines that the cost of such platform to be  
4 recovered from customers is unreasonable and not in the public interest.” Presumably  
5 implementation would be deferred until such time as the costs to be recovered from customers  
6 are no longer deemed to be unreasonable and not in the public interest, or perhaps until the  
7 General Court provides further direction. The language of RSA 378:51, III allows for a party, or  
8 perhaps the Commission, sua sponte, to make such a negative determination, if the Commission  
9 has the evidence to support a finding that the cost to be recovered from customers is  
10 unreasonable and not in the public interest. Nowhere in law is the opposite required, that the  
11 commission make a positive determination that the costs, relative to the benefits, are reasonable  
12 and in the public interest, even though that is frequently done in regulatory statutes, hence I  
13 conclude that the statute creates a rebuttable presumption that development of the data platform  
14 is in the public interest and that the burden of proof would be on the party asserting that the costs  
15 to be recovered from customers are unreasonable and not in the public interest to support a  
16 finding by the Commission that such is the case and that would only serve to defer  
17 implementation of the platform, not to eliminate the requirement.. However, at this point in the  
18 process, as Eversource and Unitil acknowledge at page 53 of their Joint Testimony, it is not  
19 possible “to provide specific cost estimates”. It is worth noting, that even without a findings or  
20 purpose statement laws are presumptively enacted for the public good and in the public interest.

21 As an aside, looking beyond the plain meaning of the words and sentences in Chapter 264, NH Laws  
22 of 2019, it is possible to see the enactment of SB 264 as a way for the General Court to express  
23 frustration with the lack of progress by the Commission and utilities in realizing the purposes and  
24 potential of RSA 374-F, full implementation of RSA 378:37, and progress in advancing the  
25 objectives of Grid Modernization, alternative net metering tariffs, and the energy efficiency resource

1 standard, so taking matters more directly into their own authority, they have interceded to try to  
2 accelerate progress by mandating the development of this platform, while allowing for deferment in  
3 time if the costs charged to ratepayers to implement, presumably following a fair bit of design and  
4 specification to better determine costs, are shown to be unreasonable and not in the public interest. I  
5 do hope that this proceeding enables development of the fullest range and depth of possible  
6 functionality and benefits, now and into the foreseeable future, at a reasonable cost, without further  
7 intervention by the General Court.

8 **Request No. EU to LGC 1-002** Witness & Respondent: Clifton Below

9 **REQUEST:** Page 7, line 18: Do you believe a cost/benefit analysis relative to overall platform  
10 development and specific platform functionality/functionalities would be reasonable and in the  
11 public interest?

12 **RESPONSE:** No. As explained in my response to EU 1-1, the law does not call for an overall  
13 cost/benefit analysis to determine public interest, because the General Court has created a  
14 rebuttable presumption that development of a statewide multi-use data platform is in the public  
15 interest and it is unproductive and perhaps contrary to law to try to second guess the General Court.  
16 To the extent costs and benefits are assessed it should be done holistically after the universe of  
17 use cases or user stories is established and agreed upon as stated repeatedly in response to utility  
18 questions about LGC proposed use cases found at tab 47 in the docket book for this case and  
19 incorporated by reference into the testimony of Dr. Amro Farid. For example, at p. 3 the LGC  
20 notes that the costs and benefits “from an individual use case should never be assessed individually.  
21 A given use case often accrues significant costs for “generic groundwork’ that can be shared across  
22 multiple use cases ... The total benefits of a given use case are usually not realized until other use  
23 cases have been implemented as well.” These observations were made as part of the original  
24 scoping comments of the City of Lebanon, Town of Hanover, and Samuel Golding that can be



1 found at tab 27 in the docket book and incorporated by reference into the testimony of Dr. Amro  
2 Farid. See, in particular, the elaboration on this very point at page 9, which I incorporate into my  
3 response. This issue was further explained in the attached PDF entitled “ATT EU to LGC 1-2 DE  
4 19-197 LGC on Use Case Reconciliation” that was provided to the entire service list in this docket  
5 on 5/28/20. For additional response to this request see the discussion that starts on the 2<sup>nd</sup> page of  
6 that document on the way forward regarding “use case prioritization” that continues on to the 3<sup>rd</sup>  
7 page.

8 For convenient reference I restate a portion of that discussion here:

9 *Furthermore, it is important to distinguish between prioritization of engineering*  
10 *implementation and prioritization of scope. In the former, the engineering scope is held*  
11 *fixed and engineering and financial constraints determine which parts of the scope will*  
12 *be built first. In the latter, the engineering scope is entirely open for discussion creating*  
13 *the potential for stakeholder winners and losers. We believe strongly that “use case*  
14 *prioritization,” without seeing how they might all fit together and share data sources and*  
15 *platform technical requirements, will destine this DE 19-197 docket to a highly*  
16 *contentious proceeding; one that most stakeholders wish to avoid as much as possible.*

17 *Part of the reason that “use case prioritization” has been proposed is the unsupported*  
18 *belief that more stakeholder use cases will lead to impractical costs. First, this belief,*  
19 *until now, is not founded in any documented evidence. Second, it is extremely common*  
20 *that stakeholder use cases are overlapping. They could 1) be identical use cases but*  
21 *stated differently, 2) have overlapping elements, or 3) be a more specific or general*  
22 *version of each other. Furthermore, the data fields necessary for two entirely different*  
23 *use cases could be entirely the same. In all of these situations, additional use cases do*  
24 *not necessarily increase costs.*

25 *Moreover, additional use cases and requirements could lower costs because they add*  
26 *greater precision and certainty for the engineering contractor and less engineering*  
27 *analysis is required to determine how to fulfill the use cases. Finally, it is well known*  
28 *within the field of systems engineering that uses cases and requirements do NOT drive*  
29 *costs. Rather, it is engineering artifacts that do. Speaking of costs before the data*  
30 *platform has been designed is an engineering non-sequitur. Returning to the example of*  
31 *the road, one wouldn’t ask for the project cost before specifying the road’s length, width,*  
32 *thickness, material and grade. Similarly, a cost-based discussion should only occur after*

1 *the data fields associated with use cases have been determined. In contrast, use cases*  
2 *and requirements do drive valuable benefits.*

### III. Discussion around providing “raw” meter data through platform

3 **Request No. EU to LGC 1-003** Witness & Respondent: Clifton Below

4 **REQUEST:** Page 7, line 22: Please specify what you believe the costs and security measures in  
5 place would need to be in order to provide “access to raw meter data on near real-time basis”?

6 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
7 witness does not have and asks the witness to undertake additional research and analysis to develop  
8 new information as part of a data request, which is not an appropriate use of discovery.  
9 Notwithstanding the objection, the witness provides the following response:

10 A basic security measure would be to make the raw data available as “read-only” so that it could  
11 not be changed or deleted in the database where it resides by unauthorized users. The cost to  
12 provide it might depend on what kind of database it is stored in (e.g. cloud based AMI data vs.  
13 legacy MDMS internal database), but seems like it might be incrementally small if similar access  
14 is provided to validated data. It is just another similar database to connect to the platform as  
15 verified meter data. The cost to store it would depend on how long it is stored for and how much  
16 space it takes such as due to the granularity of the data and the data collection interval.

17 If a customer (or their proxy, such as through “connect my data”) can stream such raw data in  
18 near real-time when it is collected, then storage costs for the utility shouldn’t need to be any  
19 more than what they are now, which is to say, once the raw data has been verified, then the raw  
20 data may no longer need to be retained and the verified data can take its place. For example, the  
21 EKM metering system referenced in footnote #2 on page 8 of my testimony only stores the most  
22 recent 1,000 reads (regardless of frequency or interval of data collection) before the data is  
23 compiled or pruned into 15-minute intervals for permanent storage. Purchase of the \$110 Push

1 device that handles all communication from the meter to the cloud based storage (without need  
2 for an intermediate computer) includes lifetime storage of 15 minute interval data for up to 50  
3 meters per Push device, including for 3 phase meters that provides separate data for each phase  
4 as well as aggregated or total load data, at no additional or recurring cost. Data includes forward  
5 and reverse kWh, watts, volts, power factor, VARs, frequency, TOU period forward and reverse  
6 kWh for up to 4 periods, pulse counts, total KVARh, resettable kWh forward and reverse, and  
7 maximum demand (by choice of interval). So, from at least one vendor the cost of long-term  
8 meter data storage at a fairly high granularity appears to be minimal as the hardware with  
9 integral software may account for most of the one-time cost.

10 **Request No. EU to LGC 1-004** **Witness & Respondent: Clifton Below**

11 **REQUEST:** Page 8, line 3: Please identify the “limitations and inaccuracies that might be  
12 inherent in raw or non-revenue grade data.”

13 **RESPONSE:** This would appear to be a question that the utilities themselves would be in the best  
14 position to answer. Having worked with a few raw meter data sets, that have collected data at  
15 intervals of once per hour (on the top of the hour), once per minute, and once per every few seconds  
16 (mostly every 3 seconds), the primary limitation that I’m familiar with is missing data reads, i.e.  
17 meter reads at the specified interval that aren’t there for whatever reason, or where the time stamp  
18 is off from what is desired. If one wants to “fill in the gaps” some kind of extrapolation or  
19 estimating algorithm needs to be applied. Another possible limitation or source of inaccuracy  
20 might arise from when the metering device is exchanged and the register reports have a disruption  
21 in numerical sequence that has to be corrected for. Some meters may have a multiplier or ratio  
22 that is applied to basic units to get the reporting units, so that could be misunderstood from raw  
23 data. The raw data may also need custom software to unencrypt or translate the data into  
24 meaningful units and descriptors. Non-revenue grade data could also be inaccurate and

1 inappropriate for revenue purposes because the underlying device has not been designed or verified  
2 to produce data within revenue grade tolerances for accuracy.

#### IV. Discussion around FERC jurisdictional issues

3 **Request No. EU to LGC 1-005** **Witness & Respondent: Clifton Below**

4 **REQUEST:** Page 8, line 5: Please identify the FERC standards “that apply to utility operations  
5 under federal jurisdiction.”

6 **RESPONSE:** Presumably all FERC standards apply to utility operations under federal  
7 jurisdiction as a jurisdictional matter. I am not acquainted with all of the details of FERC  
8 standards, but I would imagine that some FERC standards aren’t applicable to particular operations  
9 because they only pertain to certain operations and not others.

10 **Request No. EU to LGC 1-006** **Witness & Respondent: Clifton Below**

11 **REQUEST:** Page 8; line 7: Why would the referenced FERC standards relative to retail metering  
12 and distribution utility operations not be applicable to this data platform? Why would these  
13 standards not be applicable to third-party sources of data that “might be available through the  
14 platform”?

15 **RESPONSE:** First and foremost because this data platform is being developed pursuant to state  
16 law and is under state jurisdiction and not federal jurisdiction, so FERC standards are simply not  
17 applicable, except to the extent FERC jurisdictional data from the interstate transmission grid or  
18 interstate wholesale sale of electricity might be made some part of the platform.

19 I’m wondering why this is even a question as I presume electric utility lawyers are aware there is  
20 a fairly bright line between state and federal jurisdiction created explicitly by the Federal Power  
21 Act and confirmed by a series of US Supreme Court decisions. Simply put, retail meters and the  
22 data produced by them, as well as distribution utility operations and DERs generally including

1 distributed generation and storage that is less than 5 MW in capacity, not a FERC jurisdictional  
2 interstate wholesale market participant, and connected to the distribution grid are all under  
3 exclusive state jurisdiction and not under FERC jurisdiction. The General Court and the  
4 Commission in some circumstances might want apply FERC standards, such as the uniform  
5 system of accounts, to state jurisdictional matters, but they are not required to do so, as the still  
6 standing precedent of *Connecticut Light & Power Co. v. FPC*, 324 U.S. 515 (1945) makes clear,  
7 even for a non-lawyer. For readers that may not be familiar with how clearly the jurisdictional  
8 boundary has been drawn, the following excerpts from the US Supreme Court and FERC legal  
9 analysis provides a useful summary (with emphasis added)<sup>9</sup>:

10 *From US Supreme Court FERC v. EPSA, 577 U. S. \_\_\_\_ (2016)*<sup>10</sup>:

11 . . . this Court held in *Public Util. Comm’n of R. I. v. Attleboro Steam & Elec. Co.*, 273 U. S.  
12 83, 89–90 (1927), that the Commerce Clause bars the States from regulating certain interstate  
13 electricity transactions, including wholesale sales (*i.e.*, sales for resale) across state lines. That  
14 ruling created what became known as the “*Attleboro gap*”—a regulatory void which, the Court  
15 pointedly noted, only Congress could fill. [p. 3]

16 . . . Congress responded to that invitation by passing the FPA in 1935. The Act charged  
17 FERC’s predecessor agency with undertaking “effective federal regulation of the expanding  
18 business of transmitting and selling electric power in interstate commerce.” *New York v. FERC*,  
19 535 U. S. 1, 6 (2002) (quoting *Gulf States Util. Co. v. FPC*, 411 U. S. 747, 758 (1973)). Under  
20 the statute, the Commission has authority to regulate “the transmission of electric energy in  
21 interstate commerce” and “the sale of electric energy at wholesale in interstate commerce.” 16  
22 U. S. C. §824(b)(1).

23 . . . the Act also limits FERC’s regulatory reach, and thereby maintains **a zone of exclusive**  
24 **state jurisdiction**. As pertinent here, §824(b)(1)—the same provision that gives FERC authority  
25 over wholesale sales—states that “this subchapter,” including its delegation to FERC, “shall not

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<sup>9</sup> For additional legal analysis please see the protest of NARUC (which the NHPUC is a member of) in the petition of New England Ratepayers Association, FERC Case No. EL20-42, pp. 34 to 45 in particular, available at: <https://pubs.naruc.org/pub/4204BA38-155D-0A36-31CE-8A05CD0AC660>.

<sup>10</sup> [https://www.supremecourt.gov/opinions/15pdf/14-840-%20new\\_o75q.pdf](https://www.supremecourt.gov/opinions/15pdf/14-840-%20new_o75q.pdf)

1 apply to any other sale of electric energy.” **Accordingly, the Commission may not regulate**  
2 **either within-state wholesales sales** or, more pertinent here, retail sales of electricity (*i.e.*, sales  
3 directly to users). See *New York*, 535 U. S., at 17, 23. State utility commissions continue to  
4 oversee those transactions.

5 . . . as earlier described, [FPA] §824(b) limit[s] FERC’s sale jurisdiction to that at  
6 wholesale,” **reserving regulatory authority over retail sales (as well as intrastate wholesale**  
7 **sales) to the States.** *New York*, 535 U. S., at 17 (emphasis deleted); see 16 U. S. C. §824(b);  
8 *supra*, at 3. **FERC cannot take an action transgressing that limit** no matter its impact on  
9 wholesale rates. [p. 17] . . . The Act makes federal and state powers “complementary” and  
10 “comprehensive,” [p.27]

11 *Excerpts from a “Legal Analysis of Commission Jurisdiction over the Rates, Terms and*  
12 *Conditions of Unbundled Retail Transmission in Interstate Commerce” that FERC attached as*  
13 *Appendix G to its Order No. 888 ([https://www.ferc.gov/legal/maj-ord-reg/land-](https://www.ferc.gov/legal/maj-ord-reg/land-docs/order888.asp)*  
14 *[docs/order888.asp](https://www.ferc.gov/legal/maj-ord-reg/land-docs/order888.asp)):*

15 1. Relevant Federal Power Act Provisions Section 201(b)(1) of the FPA provides: The  
16 provisions of this Part shall apply to the transmission of electric energy in interstate  
17 commerce and to the sale of electric energy at wholesale in interstate commerce . . . .  
18 **The Commission shall have jurisdiction over all facilities for such transmission or**  
19 **sale of electric energy, but shall not have jurisdiction . . . . over facilities used in local**  
20 **distribution or only for the transmission of electric energy in intrastate commerce,**  
21 **or over facilities for the transmission of electric energy consumed wholly by the**  
22 **transmitter.** 16 U.S.C. 824(b)(1) (emphasis added). Thus, the statute on its face limits  
23 Commission jurisdiction over sales of energy to sales at wholesale, but does not limit  
24 jurisdiction over transmission to transmission used only for wholesale sales. Sections  
25 201(c) and (d) define the meaning of "the transmission of electric energy in interstate  
26 commerce" and "sale of electric energy at wholesale in interstate commerce." Section  
27 201(c) provides: For the purpose of this Part, electric energy shall be held to be  
28 transmitted in interstate commerce if transmitted from a State and consumed at any point

1 outside thereof: but only insofar as such transmission takes place within the United  
2 States. . . .

3 In *Connecticut Light & Power Co. v. FPC*, 324 U.S. 515 (1945)(CL&P), the Court  
4 reviewed the Commission's finding that a Connecticut utility was jurisdictional because it  
5 owned transmission facilities that were used in interstate commerce. The Court generally  
6 embraced the Jersey Central standard for determining whether facilities are used to  
7 transmit electric energy in interstate commerce. The Court emphasized that whether  
8 certain facilities transmit electric energy in interstate commerce is more a technical than a  
9 legal question. The Court stated:

10 Federal jurisdiction was to follow the flow of electric energy, an engineering and  
11 scientific, rather than a legalistic or governmental, test. [p. 6] . . .

12 CL&P, which was decided two years after Jersey Central, is the leading case interpreting  
13 the section 201(b) local distribution provision. In CL&P, the Commission sought to  
14 regulate the accounting practices of Connecticut Light & Power Company [p. 18] At  
15 issue was whether CL&P was a "public utility" under the FPA. The utility's system  
16 encompassed an area solely within a single state (Connecticut) 36/ and did not  
17 interconnect with any other company that operated out of state. "Its purchases and sales,  
18 its receipts and deliveries of power, [were] all within the state." However, CL&P did  
19 purchase energy from companies that had, in turn, purchased energy from Massachusetts.  
20 The company also sold energy to a municipality that exported a portion of that energy to  
21 Fishers Island, located off the coast of Connecticut but "territory of New York." The  
22 Commission based its jurisdiction on these few transactions. The Court of Appeals  
23 affirmed the Commission, holding that the Commission's jurisdiction extended to  
24 "electric distribution systems which normally would operate as interstate businesses."  
25 The Court of Appeals found that: whether or not the facilities by which petitioner  
26 distributes energy from Massachusetts should be classified as 'local' is not relevant to this  
27 case. The sole test of jurisdiction of the Commission over accounts is whether these  
28 facilities, 'local' or otherwise, are used for the transmission of electric energy from a point  
29 in one state to a point in another. The Supreme Court reversed. It held that the statutory

1 language in section 201(b) of the FPA providing that the Commission "shall not have  
2 jurisdiction . . . over **facilities used in local distribution**" is a limitation upon  
3 **Commission jurisdiction that "the Commission must observe and the courts must**  
4 **enforce."** In analyzing the statute, the Court stated: It has never been questioned that  
5 technologically generation, transmission, distribution and consumption are so fused and  
6 interdependent that the whole enterprise is within the reach of the commerce power of  
7 Congress, either on the basis that it is, or that it affects, interstate commerce, if at any  
8 point it crosses a state line. . . .

9 But whatever reason or combination of reasons led Congress to put the provision in the  
10 Act, we think it meant what it said by the words "but shall not have jurisdiction over  
11 facilities used in local distribution." Congress by these terms plainly was trying to  
12 reconcile the claims of federal and local authorities and to apportion federal and state  
13 jurisdiction over the industry.

14 The Court decided that **this limitation on jurisdiction was "a legal standard that must**  
15 **be given effect** in this case in addition [p. 20] to the technological transmission test." . . .

16 The Court stated that whether or not local distribution facilities carried out-of-state  
17 electric energy was irrelevant. **Whatever the origin of the electric energy they carried, so**  
18 **long as the utility used the lines for local distribution, they were exempt from federal**  
19 **jurisdiction.** In fact, the Court stated that local distribution facilities "may carry no  
20 energy except extra-state energy and still be exempt under the Act."

21 The Court concluded that the Commission's order: must stand or fall on whether this  
22 company owned facilities that were used in transmission of interstate power **and** which  
23 were **not facilities used in local distribution.**

## V. Issues when a customer gives 3<sup>rd</sup> party access to their data

24 Request No. EU to LGC 1-007

Witness & Respondent: Clifton Below

25 **REQUEST:** Page 8, lines 9-10: Other than "informed customer choice" in the competitive third-  
26 party market, what other data accuracy, timeliness, privacy, and security concerns



1 should be required for competitive third-party entities? What qualifications should potential users  
2 of the platform have to meet in order to be granted access to the platform?

3 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
4 witness does not have and asks the witness to undertake additional research and analysis to develop  
5 new information as part of a data request, which is not an appropriate use of discovery.  
6 Notwithstanding the objection, the witness provides the following response:

7 The statement referenced was specifically regarding standards for data retention. The context of  
8 the quoted text was with regard to “informed customer consent” helping to drive (or shape, if  
9 you will) requirements on third parties, so as to indicate that if a customer wants to release their  
10 data publicly, or some subset of it, or they want a vendor to retain it indefinitely, those should be  
11 options that an informed customer should be able to authorize. This would be in contrast to a  
12 policy that would require all third parties to destroy customer data within set periods of time,  
13 which would be impossible if was released publicly.

14 **Request No. EU to LGC 1-008** Witness & Respondent: Clifton Below

15 **REQUEST:** Page 8, line 11: Please specify what the data storage cost and security issues would  
16 be “If a customer wants their individual customer data to be warehoused by a vendor  
17 indefinitely.” What quality standards would be expected of such data and who would be  
18 responsible for them?

19 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
20 witness does not have and asks the witness to undertake additional research and analysis to develop  
21 new information as part of a data request, which is not an appropriate use of discovery.  
22 Notwithstanding the objection, the witness provides the following response:

23 These issues should primarily be between the vendor or third party and the individual customer,  
24 as it normally is in any open and competitive free market. Security, costs, and quality standards

1 should all depend on the particular use case or application. The utility should not be responsible  
2 for data storage costs, security issues, and quality standards once the data is released by a  
3 customer to a third party. There could be some built in options, perhaps on top of default  
4 settings, in some these matters that a customer could select when they choose to share their data.  
5 It would probably depend on the use case.

**VI. Why the data platform should support retail level transactive energy  
system and potential benefits of such**

6 **Request No. EU to LGC 1-009** Witness & Respondent: Clifton Below

7 **REQUEST:** Page 9, line 5: Please outline where in the legislation the data platform is required  
8 to support the “development of a retail/distribution system level transactive energy  
9 systems (with) near real-time access to certain data”? If this is additional functionality,  
10 please provide an estimated costs and benefits, or if cost or savings estimates cannot be provided,  
11 please explain why not, and at least provide the benefits that could be seen from this in 5 years  
12 from the launch of the data platform.

13 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
14 witness does not have and asks the witness to undertake additional research and analysis to develop  
15 new information as part of a data request, which is not an appropriate use of discovery.  
16 Notwithstanding the objection, the witness provides the following response:

17 The statute does not specifically state that the data platform is required to support development  
18 of transactive energy systems, nor does it anywhere preclude such. However, the purpose  
19 statement of the law (Chapter 286:1, NH Laws of 2019) does start off by saying “[i]n order to  
20 accomplish the purposes of electric utility restructuring under RSA 374-F . . .” it is necessary to  
21 develop a multi-use online data platform. RSA 374-F is pretty much all about developing, what  
22 today is known as “transactive energy systems” at both the wholesale and retail levels.

1 Let's look at the most widely accepted current definition of transactive energy systems  
2 developed by the Gridwise Architecture Council:

3           A system of economic and control mechanisms that allows the dynamic balance of  
4           supply and demand across the entire electrical infrastructure using value as a key  
5           operational parameter.

6 Value is primarily denoted in dollars. The interstate wholesale market for the supply of  
7 electricity is a transactive energy system operated by ISO New England. However, it only  
8 covers part of the electrical infrastructure in the region, mostly on the bulk supply side at the  
9 transmission system level. The demand side of the equation, load and DERs in the retail market  
10 at the distribution system level, is largely disconnected and disabled from using "value," a.k.a.  
11 "appropriate price signals" as used in RSA 374-F:1, to help dynamically balance supply and  
12 demand. Dynamic balancing of supply and demand in electricity requires access to  
13 consumption, production, and system data in near real time, whether done under the traditional  
14 "command and control" model of a vertically integrated regulated monopoly utility or in  
15 restructured market based approach to supplying system resource needs. RSA 374-F:1 states that  
16 the "goal of restructuring is to develop a more efficient industry structure and regulatory  
17 framework" by "harnessing the power of competitive markets" to drive down costs and increase  
18 economic efficiency. "Increased customer choice and the development of competitive markets  
19 for wholesale and retail electricity services are key elements in a restructured industry . . . ."  
20 RSA 374-F:3, XIV further provides that "[t]he market framework for competitive electric service  
21 should, to the extent possible, reduce reliance on administrative process. New Hampshire should  
22 move deliberately to replace traditional planning mechanisms with market driven choice as the  
23 means of supplying resource needs."

24 As described in pp. 134-141 of Dr. Farid's testimony "the shared integrated grid is the leading  
25 industrial concept for New Hampshire to achieve its objectives" expressed in law and

1 development of a transactive energy system at the distribution system level “will enable  
2 animated and competitive retail electricity markets and help customers to obtain lower electric  
3 costs, reliable service, and secure energy supplies.”<sup>11</sup> He completes his explanation of how the  
4 data platform enables a transactive energy system that enables a shared integration grid that best  
5 realizes the legislative objectives thus:

6 *The statewide multi-use online energy data platform would allow for network-enabled*  
7 *distributed energy resources and devices to communicate the prices and quantities of*  
8 *electricity services that they provide or utilize in real-time. The data platform would*  
9 *allow customers to engage by sending and receiving their consumption and distributed*  
10 *generation data and reporting the status of energy storage capacity to charge or*  
11 *discharge, not unlike spinning reserve. The data platform would send and receive the*  
12 *price and quantity data inherent to the coordinated exchange of electricity at the*  
13 *community level. In short, there is no shared integrated grid without a data platform that*  
14 *engages the participation and communication of grid stakeholders. It is foundational.*

15 Beyond enabling realization of legislative objectives what is the benefit of the data platform  
16 enabling development of a retail/distribution level transactive energy system and why don't I  
17 have a number for that specific to New Hampshire now? First I'd say the benefit could be  
18 immense. It could allow New Hampshire to become a national leader in how to harness the  
19 power of competitive markets to dramatically accelerate the cost-effective development and  
20 integration of renewable energy resources to achieve our goals to decarbonize the electric grid  
21 and avert the worst of run away global warming. What might be the value of helping to save  
22 global eco-systems and civilization itself by providing leadership and a model of how we can  
23 actually collaboratively do this (the shared integrated grid), while at the same time helping our  
24 local communities to be environmentally and economically sustainable for generations to come?  
25 Priceless I'd say.

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<sup>11</sup> Testimony of Dr. Amro M. Farid for City of Lebanon & LGC, Bates p. 14

1 Second, why don't I have a quantification of the value of such benefit? It's complicated as  
2 evidenced by the result of a multi-year project funded by the U.S. Department of Energy that  
3 culminated in a final report entitled *Valuation of Transactive Systems*.<sup>12</sup> The abstract for the  
4 report states that the project was:

5 *to formulate and test a methodology for valuation of systems where transaction-based*  
6 *mechanisms coordinate the exchange of value between the system's actors. Today, the*  
7 *principal commodity being exchanged is electrical energy, and such mechanisms are*  
8 *called transactive energy systems. The authors strove to lay a foundation for meaningful*  
9 *valuations of transactive systems in general, and transactive energy systems as a special*  
10 *case. The word valuation is used in many different ways. This report proposes a*  
11 *valuation methodology that is inclusive of many types of valuations. Many will be*  
12 *familiar with cost-benefit valuations, in which both costs and benefits are assessed to*  
13 *determine whether the assets are worth their cost. Another set of valuation methods*  
14 *attempt to optimize an outcome using available resources, as is the case with integrated*  
15 *resource planning. In the end, this report's methodology was most influenced by and*  
16 *most resembles the integrated-resource-planning approach.*<sup>13</sup>

17 It might be a very interesting exercise to apply the methodology in this report to a New  
18 Hampshire specific case study in the context of what this data platform could enable, but that is  
19 beyond my means to do as a volunteer in a data response, or really at any point in this  
20 proceeding. However, there are a few analyses that might give us an order of magnitude for the  
21 potential of TE. Appendix A to *Valuation of Transactive Energy* is entitled "An Estimate of the  
22 Potential Value of Supplying Grid Services Using Flexible Loads in Residential and Commercial  
23 Buildings - Summary of Results," by RG Pratt and N Fernandez, Pacific Northwest National  
24 Laboratory, 9-10-2014. At the request of DOE they "developed an estimate of \$22B/year for the  
25 potential value of continuously engaging real-time-flexible loads in both residential and  
26 commercial buildings to provide grid services if deployed at the national scale." Presumably in

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<sup>12</sup> Hammerstrom, Donald J., Corbin, Charles D., Fernandez, Nicholas, Homer, Juliet S., Makhmalbaf, Atefe, Pratt, Robert G., Somani, Abhishek, Gilbert, Erik I., Chandler, Shawn, and Shandross, Richard. Thu . "Valuation of Transactive Systems". United States. doi:10.2172/1256393. <https://www.osti.gov/biblio/1256393>.

<sup>13</sup> *Id.*, p. A.1.

1 2014 dollars the NH share of that would be about \$66 to \$88 million/year based on NH's  
2 proportion of US 2018 electricity load (about 0.3%)<sup>14</sup> or 2019 population of NH as a share of the  
3 national total (about 0.4%).

4 A separate analysis reported on last year by a team from the Brattle Group, including Dr.  
5 Faruqui, on "The National Potential for Load Flexibility VALUE AND MARKET POTENTIAL  
6 THROUGH 2030" estimated the annual potential savings from additional flexible load in the US  
7 that could be enabled, in part, by transactive energy systems to be about \$16.4 billion/year by  
8 2030.<sup>15</sup> Again, using NH's load or population as an approximate share of total benefits, suggests  
9 potential value of \$49 to \$66 million per year.

10 Dr. Farid in his testimony also estimates "a very conservative" potential annual savings for New  
11 Hampshire from a fully enabled TE system in New England of about \$6.8 million based on only  
12 savings in the day-ahead or real-time markets.<sup>16</sup>

13 **Request No. EU to LGC 1-010** **Witness & Respondent: Clifton Below**

14 **REQUEST:** Page 9, line 12: Please identify the data sets described as "purely public data."

15 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
16 witness does not have and asks the witness to undertake additional research and analysis to develop  
17 new information as part of a data request, which is not an appropriate use of discovery.  
18 Notwithstanding the objection, the witness provides the following response:

19 These data sets can be determined as part of the process of use case reconciliation, data mapping  
20 and platform development.

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<sup>14</sup> Computed from <https://www.eia.gov/electricity/state/>.

<sup>15</sup> See slide 20: [https://brattlefiles.blob.core.windows.net/files/16639\\_national\\_potential\\_for\\_load\\_flexibility\\_-\\_final.pdf](https://brattlefiles.blob.core.windows.net/files/16639_national_potential_for_load_flexibility_-_final.pdf).

<sup>16</sup> Testimony of Dr. Farid, p. 164.

1 These likely include any data that is publicly (non-confidentially) filed with the NHPUC, FERC,  
2 other government agencies or ISO New England in periodic reports or otherwise, such as in  
3 Liberty Utilities recent filing in DE 19-067 of its only slightly redacted “Salem Area Study  
4 2020.”<sup>17</sup> Data that is otherwise made publicly available, such as the type of system data,  
5 including topology, that is available through public web portals as described and linked to on pp.  
6 159-160 of Dr. Farid’s testimony would be public data. Rates and market information may also  
7 be public data. Most if not all aggregated community level data should also fall into the public  
8 data bucket.

## VII. Issues around anonymized data

9 **Request No. EU to LGC 1-011** Witness & Respondent: Clifton Below

10 **REQUEST:** Page 9, lines 18-20: For data “that has been effectively anonymized or aggregated  
11 such that it cannot be associated or attributed [to] any one individual customer” what safeguards  
12 should be in place to protect that data?

13 **RESPONSE:** Generally speaking, if customer data has been effectively anonymized or  
14 aggregated such that it cannot be associated or attributed to any one individual customer then it no  
15 longer meets the definition of protected individual customer data under RSA 363:37 and so I’m  
16 not sure there needs to be extensive safe guards in place to protect that data. In theory if a user of  
17 the system could make many calls for aggregated or anonymized data that overlapped a great deal  
18 and only varied slightly, they might be able to tease out instances of individual customer data. So,  
19 limitations on the volume of overlapping data aggregation or anonymization requests might be in

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<sup>17</sup> [https://www.puc.nh.gov/Regulatory/Docketbk/2019/19-064/MOTIONS-OBJECTIONS/19-064\\_2020-09-02\\_GSEC\\_SALEM\\_STUDY.PDF](https://www.puc.nh.gov/Regulatory/Docketbk/2019/19-064/MOTIONS-OBJECTIONS/19-064_2020-09-02_GSEC_SALEM_STUDY.PDF)

1 order. Minimum thresholds for the public release of anonymized and aggregated data would also  
2 be appropriate.

3 **Request No. EU to LGC 1-012** **Witness & Respondent: Clifton Below**

4 **REQUEST:** Page 10, line 5: Please reference any aggregation and anonymization standards you  
5 or the CPA's have considered for adoption.

6 **RESPONSE:** I think the Illinois standard for release of anonymized data sets of customer data  
7 (not just aggregation) seem appropriate for adoption. Illinois has been an early leader in making  
8 multi-tenant energy data available to commercial building owners for benchmarking and other  
9 purposes. They have also enabled access to large quantities of anonymized AMI meter data. As  
10 I understand it their standard for the release of actual individual customer data sets, provided  
11 anonymously, is that there is required be a minimum of 15 sets of data with no one data set  
12 representing more than 15% of the load. That may be reasonable for NH. A few other states use  
13 a similar 15/15 standard for the release of anonymized data. The New York Public Service  
14 Commission found that to be too restrictive of community level commercial account data and have  
15 lowered their standard for such aggregated data, such as for publicly available community level  
16 data by rate class, to require a minimum of 6 customers in a data set with no one customer  
17 accounting for more than 40% of the total, so NY has adopted a 6/40 standard for aggregation of  
18 commercial customers, while maintaining a 15/15 standard for aggregation of residential customer  
19 data.<sup>18</sup>

20 For the release of whole building energy data that includes tenant meter data, the New York PSC  
21 approved a 4/50 standard where "aggregated customer usage data is considered sufficiently  
22 anonymous to share publicly if (1) the aggregated group contains at least 4 individual accounts,

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<sup>18</sup> NYPSC, April 20, 2018, Order Adopting Utility Energy Registry, available at:  
[https://drive.google.com/file/d/1ZO-wdp2Wvb4zdHgw\\_Otdf1-FWLxIEec7/view](https://drive.google.com/file/d/1ZO-wdp2Wvb4zdHgw_Otdf1-FWLxIEec7/view)



1 and (2) no one account represents more than 50% of the total load. Where a set of data fails to  
2 pass the 4/50 standard, the building owner may only receive the data with tenant consent.”<sup>19</sup> For  
3 commercial class customers, we suggest that standard would also be appropriate for community  
4 level aggregated data, considering that small numbers of such C&I rate class customers in some  
5 New Hampshire towns. .

### VIII. Issues around registration requirements

6 **Request No. EU to LGC 1-013** Witness & Respondent: Clifton Below

7 **REQUEST:** Page 10, line 8: Please explain more fully what registration requirements you think  
8 should be in place that align qualifications in a manner that is “commensurate with the level of  
9 access sought”.

10 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
11 witness does not have and asks the witness to undertake additional research and analysis to develop  
12 new information as part of a data request, which is not an appropriate use of discovery.  
13 Notwithstanding the objection, the witness provides the following response:

14 The referenced text was with regard to “qualifications requirements for registration to access the  
15 data platform” and argues that it should be commensurate or proportionate with the level of  
16 access sought. For instance, a user that is a utility customer should have their identity verified,  
17 but should not have other significant qualifications required to access their own data. A user that  
18 only wants publicly available data should not be subject to NDAs or cybersecurity reviews,  
19 though confirmed identity and contact information would be appropriate. A property owner or  
20 their agent that only wants aggregated data for whole building energy use likewise should not be  
21 subject to NDAs or cybersecurity reviews either, though identity confirmation is more important

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<sup>19</sup> NYPSC, April 20, 2018, Order Adopting Whole Building Energy Data Aggregation Standard, p. 2, available at:  
[https://drive.google.com/file/d/1InjfbysYSwWuL\\_c0Dc8fov2BVfexSPz\\_/view](https://drive.google.com/file/d/1InjfbysYSwWuL_c0Dc8fov2BVfexSPz_/view).

1 than for just accessing more purely public information. Private party users that want access to  
2 individual customer data or other confidential data might be subject to more rigorous registration  
3 requirements, although if a customer provides informed consent to a third party to access their  
4 data for the purpose of publicly displaying it then requirements on that third party should reflect  
5 that fact, i.e. not be contrary to a boilerplate NDA requirements.

6 Once a Community Power Aggregation is formed under RSA 53-E it has the same legal  
7 obligations as the utilities as a service provider under RSA 363:38, pursuant to RSA 53-E:4, VI,  
8 which also expressly exempts such information from disclosure under RSA 91-A, so no NDAs  
9 should be required for them to access data for their customers. Municipalities and counties as  
10 subdivisions of the state should not be subject to cybersecurity reviews by private monopoly  
11 utilities to use the platform. They now routinely collect, securely hold, and protect confidential  
12 personal information and individual customer data to the extent protected by RSA 91-A.

### **IX. Issues around potential vendors**

13 **Request No. EU to LGC 1-014** Witness & Respondent: Clifton Below

14 **REQUEST:** Page 10, line 17: Please explain whether the software products developed  
15 by mPrest and Kavala Analytics have been certified by the Green Button Alliance  
16 or are compliant and able to be certified. How would these products minimize costs if they are  
17 external applications to the data platform? Who would benefit from these possible  
18 cost reductions?

19 **RESPONSE:** I am not aware that either referenced product has been certified by GBA or are  
20 compliant to do so, as that does not appear to have been one of their purposes to date. I suggest  
21 that these innovative developers of utility energy data platforms that already draw utility data from  
22 a large variety of different databases and systems using API interfaces that may incorporate other  
23 features of the data hub that is imagined for New Hampshire, including data privacy protection

1 and cybersecurity features, might be able to adapt their software to meet a major portion of the  
2 software development needs of this project

3 This might well be less expensive than starting from scratch with vendors that are not familiar  
4 with electric utility and other energy data databases and platforms. Discussions with each party  
5 by members of the LGC suggests that they are not simply looking for customers for their  
6 software as is, but are very interested in exploring the possibility of adapting or extending their  
7 software to meet the needs of the proposed statewide multi-use energy data platform.

**X. Why property owners should be able to access whole building energy  
usage data through the platform**

8 **Request No. EU to LGC 1-015** Witness & Respondent: Clifton Below

9 **REQUEST:** Page 10, lines 9-12: Do you believe that property owners should have access to  
10 tenant energy usage and metering data via the platform even under circumstances where the  
11 tenants have their own utility account and meter? Please explain.

12 **RESPONSE:** Yes. If there are 4 or more tenants with their own utility meters and no one of them  
13 accounts for more than 50% of total load then the aggregate load data from such tenant meters,  
14 with ICD removed, should be made available without tenant permission as is the case in New  
15 York. If there are 3 or fewer such tenants, or if the property owner wants to see individual customer  
16 data, then those customers should be able to consent to providing their meter or consumption data  
17 to the property owner or their agent through the data platform on a one-time or continuing basis  
18 (such as through “connect my data”) for a fixed term or until permission is revoked.

19 This would enable the property owner to properly benchmark and understand their whole  
20 building energy use, including in conjunction with utility sponsored energy efficiency programs  
21 and calculations of before and after EUIs. The NY PSC “Order Adopting Whole Building

1 Energy Data Aggregation Standard” referenced and linked to in the response to Request No. EU  
2 to LGC 1-012 elaborates on the need for and value of such data access.

3 In 2011 the Board of Directors of NARUC passed a resolution acknowledging “the need for  
4 commercial building owners and managers to access whole-building energy consumption data to  
5 support energy-efficient building operations” and encouraging “State public utility commissions  
6 seeking to capture cost-effective energy savings from commercial buildings to consider a  
7 comprehensive benchmarking policy that includes:

- 8 • Use of EPA ENERGY STAR automated benchmarking services and other benchmarking  
9 services, such as the Commercial Building Consumption Survey;
- 10 • Adopting methodologies to consistently and accurately credit program impact to  
11 benchmarking-driven energy efficiency programs; and
- 12 • Taking all reasonable measures to facilitate convenient, electronic access to utility energy  
13 usage data for building owners, including aggregated building data that does not reveal  
14 customer-specific data to protect individual customer privacy, as well as the sharing of  
15 customer-specific data to the extent provided for under State law and regulations.”

## **XI. Why NDAs should not be required of all data platform users**

16 **Request No. EU to LGC 1-016** Witness & Respondent: Clifton Below

17 **REQUEST:** Page 10, lines 12-13: Please explain why “NDAs should not be required for users  
18 who do not seek access to any ICD or otherwise sensitive or confidential data.”

19 **RESPONSE:** If a user of system is not seeking authorization to access any ICD or other data that  
20 is not public in nature, i.e. “sensitive or confidential data,” then the remaining data that they access  
21 would be more in the nature of public data that need not be protected from release; hence no need  
22 for an NDA. It is my understand that the “Utility Data Registry” run by NYSERDA in New York

1 state provides community level aggregated energy consumption data publicly, over a web portal,  
2 where no NDA is required, and apparently not even registration. See [https://data.ny.gov/Energy-  
3 Environment/Utility-Energy-Registry-Monthly-Community-Energy-U/m3xm-q3dw](https://data.ny.gov/Energy-Environment/Utility-Energy-Registry-Monthly-Community-Energy-U/m3xm-q3dw).

## **XII. A few more issues around potential vendors or software sources**

4 **Request No. EU to LGC 1-017** Witness & Respondent: Clifton Below

5 **REQUEST:** Page 10, line 17: How might mPrest’s or Kavala Analytics’s software products be  
6 adapted to be the “core of an energy data hub”? Does either software vendor offer Green Button  
7 Connect capability currently? Who would be responsible for ongoing management of those  
8 products? Would those companies be hired as a contractor or brought on as platform operation  
9 staff? Please provide pricing for all products and services for mPrest and Kevala.

10 **RESPONSE:** Please see the response to Request No. EU to LGC 1-014 for a response to the first  
11 two questions. The data platform project manager or developer would be responsible for engaging  
12 and managing these companies and their products to the extent parts of them might be incorporated  
13 into the data platform hub. I do not have pricing for their products and services beyond what  
14 mPrest has publicly filed in this proceeding at tab 55 of the docket book.

15 **Request No. EU to LGC 1-018** Witness & Respondent: Clifton Below

16 **REQUEST:** Page 10, line 19: Please explain fully how the “the open  
17 source Volttron software” satisfies the required functionality of SB284. Does Volttron software  
18 offer Green Button Connect capability currently? Please provide Volttron’s pricing for all  
19 products and services.

20 **RESPONSE:** I did not assert that the Volttron software “satisfies the required functionality of  
21 SB284.” I doubt that it has any Green Button Connect features, although I don’t know that one  
22 way or the other. (It is possible that has features to accept connected Green Button data.) It was

1 developed by the Pacific Northwest National Laboratory with public funding from the US DOE  
2 and designed to be open-source software freely available, so I am unaware of any pricing. The  
3 point of the reference is that it is a software product closely related to energy data platforms that  
4 appears to offer free, and to some extent supported, access to software code that may be useful in  
5 developing code for the NH energy data hub/platform. Here is some of the information from the  
6 volttron.org website on one of its relevant features:

7 **SECURE** From the beginning, VOLTTRON™ developers actively collaborated with  
8 cyber security experts and built security *into* the technology, rather than “bolting it on”  
9 later. The commitment has continued, with developers regularly upgrading features in  
10 response to emerging requirements and VOLTTRON™ user feedback.

11 The platform applies a threat-model approach for determining software threats and  
12 vulnerabilities and how to reasonably reduce the attack surface and/or harm from a  
13 compromise. Through established mitigation strategies, VOLTTRON™ addresses a  
14 range of possible attack avenues and risks.

15 See also [https://volttron.org/sites/default/files/publications/VOLTTRON\\_security\\_2017.pdf](https://volttron.org/sites/default/files/publications/VOLTTRON_security_2017.pdf).

16 There may also be coding relating to interoperability that may be relevant: “Volttron makes it  
17 possible for diverse systems and subsystems, in and out of the energy sector, to interact and  
18 connect.”

19 **Q. Does that conclude your testimony?**

20 A. Yes it does.